Dart Aerospace Ltd. Wednesday, 23/07/2008 10:10:24 AM Date\* User. Jean-Luc Menard **Process Sheet** : BRACKET ASSEMBLY Customer : CU-DAR001 Dart Helicopters Services **Drawing Name** Job Number : 40250 **Estimate Number** : 10278 : D3121141 **Part Number** P.O. Number : D3121 REV E : 23/07/2008 S.O. No. : **Drawing Number** This Issue : N/A : NC Project Number Prsht Rev. : E : MACHINED PARTS : 04/07/2008 **Drawing Revision** First Issue : 39921 Material **Previous Run** : 30/07/2008 Qty: 20 Um: **Due Date** Written By Checked & Approved By : Est Rev:Rick:A 04.02.18 New issue KJ/DS Comment Est Rev:B ECN 1060 07-11-12 DD verified by: EC Additional Product Job Number: Description: Seq. #: **Machine Or Operation:** M174B1250X02000 17-4 SS Bar 1.250 x 2.00 1.0 Comment: Qty.: 0.5775 f(s)/Unit Total: 11.5500 f(s) Material: 17-4 SS Bar per AMS 5604/5643 (M17-4-B1.250x02.000) Identify for D3121-111 Batch: M 108595 BAND SAW BAND SAW Comment: BAND SAW Cut blanks: (1.000" x 2.000") 6.600" long HAAS CNC VERTICAL MACHINING #1 HAAS1 3.0 Comment: HAAS CNC VERTICAL MACHINING #1

1-Machine D3121-111 as per Folio FA361 and Dwg D3121Identify as D3121-111

2-Debur

QC2

3-Scribe batch number

Comment: INSPECT PARTS AS THEY COME OFF MACHINE



Each







4.0

Date: Wednesday, 23/07/2008 10:10:24 AM User: Jean-Luc Menard **Process Sheet Drawing Name: BRACKET ASSEMBLY** Customer: CU-DAR001 Dart Helicopters Services Part Number: D3121141 Job Number: 40250 Job Number: Seq. #: Description: **Machine Or Operation:** SECOND CHECK 5.0 Comment: SECOND CHECK 6.0 D312121 Bolt Comment: Qty.: 1.0000 Each(s)/Unit Total: 20.0000 Each(s) Pick: Description Bate **Qty Part Number** 1 D3121-21 D3121241 7.0 Bearing Assembly Comment: Qty.: 1.0000 Each(s)/Unit Total: 20.0000 Each(s) Pick: **Qty Part Number** Description Batch 1 D3121-241 Bearing Ass SMALL & MEDIUM FAB RESOURC 8.0 Comment: SMALL & MEDIUM FAB RESOURCE 1 Assemble D3121-141 as per Dwg D3121. 9.0 QC5 INSPEC counted Comment: INSPECT WORK TO CURRENT STEP 10.0 PACKAGING RESOURCE #1 Comment: PACKAGING RESOURCE #1 Identify and Stock Location: 11.0 QC21 FINAL INSPECTIONWIO RELEASE Comment: FINAL INSPECTION/W/O RELEASE Job Completion

DART AEROSPACE LTD	Work Order:	40250
Description: Bracket	Part Number:	D3121-111
Inspection Dwg: D3121 Rev: E		Page 1 of 1

## FIRST ARTICLE INSPECTION CHECKLIST

X First Article Prototy
-------------------------

Drawing	ving Actual Accept Reje		Reject	Method of	Comments	
Dimension	Tolerance	Dimension	Accept	, reject	Inspection	
Ø0.392	+0.002/-0.000	0.393				
0.75	+/-0.030	0.752	<b>V</b>			
0.375	+/-0.010	0.375				
2.14	+/-0.030	2,40	<b>/</b> .			
1.96	+/-0.030	1,963	<b>✓</b>			
0.280	+/-0.010	0,280	<b>1</b>			
3.330	+/-0.010	3.33				
3.630	+/-0.010	3.630	<b>1</b>			
R0.25	+/-0.030	0.250	~			
R0.375	+/-0.010	0.375	<b>\</b>			
Ø0.201	+0.005/-0.001	0.200	<b>√</b> _			
0.100	+/-0.010	0.102			<u> </u>	
4.580	+/-0.010	4.580				
6.18	+/-0.030	6.180	1			
5.89	+/-0.030	5,8875	<b>\</b>			
0.080	+/-0.010	0.073	1			,
0.300	+/-0.010	0.297				. ,
30°	+/-0.1°	30°	<b>\</b>			
R0.25	+/-0.030	0.250				
0.130	+/-0.010	0.1285				
0.664	+/-0.010	O. 664				
0.381	+/-0.010	0.390				
0.201	+/-0.010	0.204	/			
0.400	+/-0.010	0.398				
0.580	+/-0.010	0.584	/			
100°	+/-0.1°	100°	<b>/</b>			
0.032	+0.000/-0.010	0.027				

Measured by:	Audited by: 5D	Prototype Approval:	N/A
Date: 08/07/24/05	Date: 08/04/26	Date:	N/A

Rev	Date	Change /	Revised by	Approved
Α	04.01.12	New Issue P/O D3121-141	KJ/RF	
В	04.05.05	Dimensions changed/re-arranged per Dwg revision	KJ/JLM	
С	06.06.14	Dwg Rev. updated	KJ/JLM	
D	08.01.16	Dimensions updated per Dwg Rev. E	KJ/EC/DD	
E	08.05.28	Tolerance revised for Ø0.201 dimension	KJ/DD	
			7()	

W/O:		WORK ORDER O	HANGES				
DATE	STEP	PROCEDURE CHANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approva QC Inspecto
Part No	-	PAR #: Fault Category:	NCR: Yes	No DQ	<b>A</b> :	_ Date: _	• • • • • • • • • • • • • • • • • • • •
			QA:	N/C Close	d:	_ Date: _	

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
		Description of NC	Description of NC Corrective Action Section B			Verification	Annroyal	Annewal
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section C	Approval Chief Eng	Approval QC Inspector
		·						



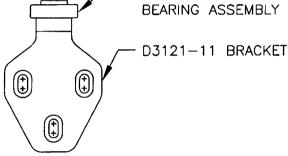
DESIGN DRAWN BY		DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA 1				
CHEC	KED	APPROVED	DRAWING NO. REV. E			
	91	TIT	D3121 SHEET 1 OF 10			
DATE			TITLE SCALE			
07.1	11.07		BRACKET ASSEMBLY 1:2			
 Α		02.04.15	NEW ISSUE			
В		03.01.16	ADD RIDGES; ADD MAT'L PROP; FIX P/N ADD -141/-143/-144/-145/-146			
С		04.02.17	ADD CLEARANCE; USE -241 BEARING			
D		06.05.17	D3121-25 CAP WAS 1.024, NOW 1.000			
Ε		07.11.07	ADD TOLERANCE TO 0.032 (DETAIL B)			



D3121-2	BOLT (1)
D3121-24	<b>1</b> 1
BEARING A	ASSEMBLY (1)

#### D3121-041 BRACKET ASSEMBLY

(REPLACES PREMIER P/N B30-23000-33)



D3121-21 BOLT (1) D3121-241 BEARING ASSEMBLY (1) (2 PLACES)

D3121-13/-14 BRACKET

D3121-21 BOLT (1) D3121-241 BEARING ASSEMBLY (1) (2 PLACES)

(2 PLACES)

D3121-15/-16 BRACKET

# D3121-043 (SHOWN) / D3121-044 (OPPOSITE) BRACKET ASSEMBLY

(REPLACES PREMIER P/N B30-23000-37/-38)

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

# D3121-045 (SHOWN) / D3121-046 (OPPOSITE) BRACKET ASSEMBLY

(REPLACES PREMIER P/N B30-23000-35/-36)

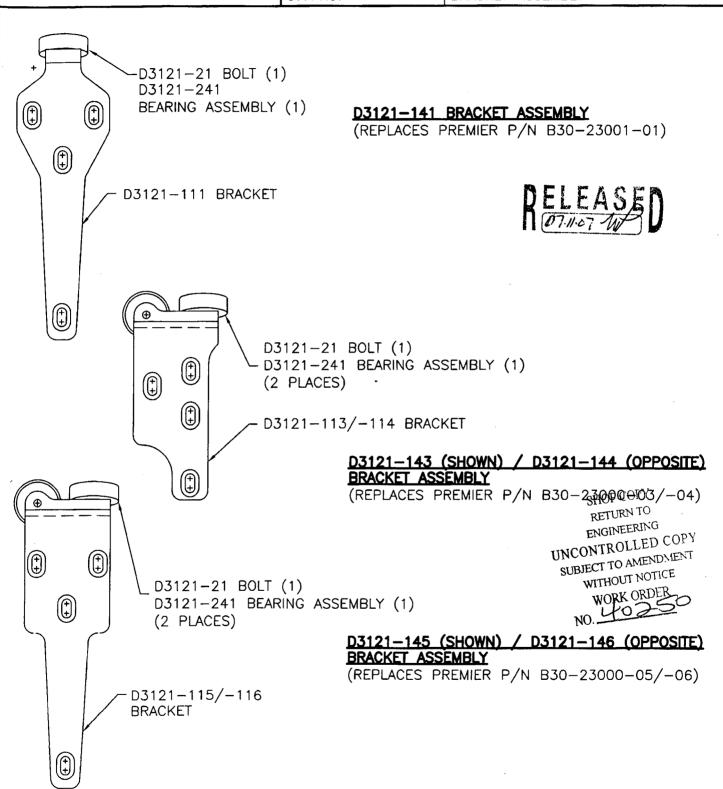
Copyright © 2002 by DART AEROSPACE LTD

W/O:		WORK O	RDER CHANGES			· · · · · · · · · · · · · · · · · · ·	
DATE	STEP	PROCEDURE CHANGE	В	y Da	ate Qty	Approval Chief Eng / Prod Mgr	Approva QC Inspecto
Part No		PAR #: Fault Category:	NCR: \	es No	DQA:	Date: _	
			Q	A: N/C (	Closed:	Date: _	
		WORK ORDER NO	N CONFORMANCE (A	100			

WORK ORDER NON-CONFORMANCE (NCR)				
tion Annual	erification Approva	Annaval		
		Approval QC Inspector		
ļ				



		<u> </u>	
DESIGN	DRAWN BY	DART AEROSP HAWKESBURY, ONTA	
CHECKED	APPROVED	DRAWING NO.	REV. E
#	#	D3121	SHEET 2 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:2



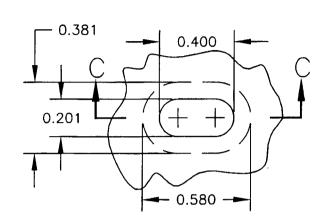
W/O:			WORK ORDER	CHANGES	<del></del>			
DATE	STEP	PR	OCEDURE CHANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
Part No		PAR #:	Fault Category:	NCR: Y	es No DO	QA:	Date: _	
				Q	A: N/C Close	ed:	Date: _	
NCR:			WORK ORDER NON-CON	IFORMANCE (N	CR)			

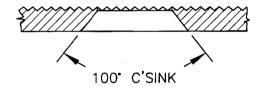
NCR:			WORK ORDI	ER NON-CONFORMAN	CE (NCR)			
		Description of NC		Corrective Action Section B	3	Verification	Annroval	Ammrayal
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section C	Approval Chief Eng	Approval QC Inspecto



DESIGN	DRAWN BY	DART AEROSP HAWKESBURY, ONTAR	
CHECKED	APPROVED,	DRAWING NO.	REV. E
4	<b>-#</b>	D3121	SHEET 3 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:1

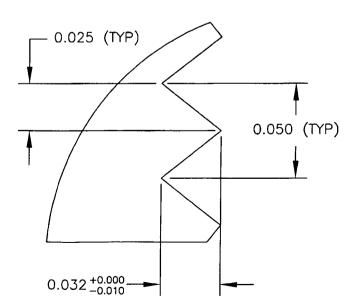
**DETAIL A:** SCALE 2:1 VIEW ROTATED





**SECTION** 

RIDGE DETAIL PARTIAL SECTION SCALE 1:20



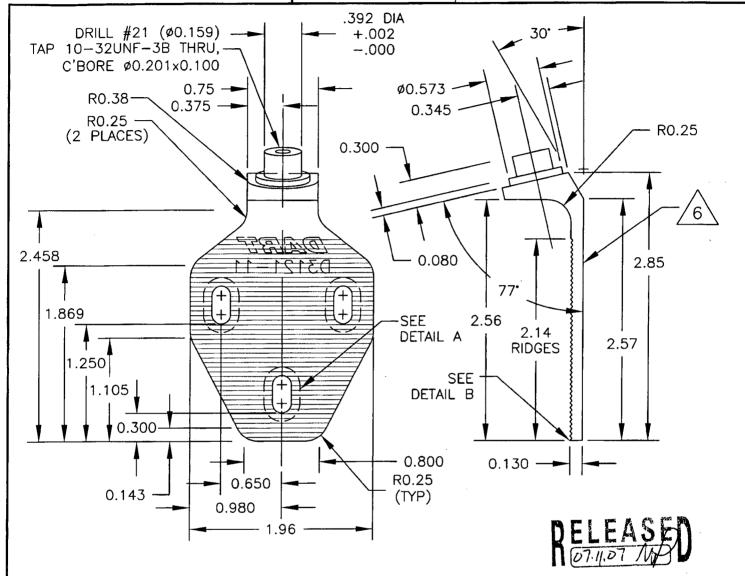
SHOP COPY RETURN TO ENGINEERING UNCONTROLLED COPY SUBJECT TO AMENDMENT WITHOUT NOTICE

W/O:			WORK ORDER	CHANGES					
DATE	STEP	· PRO	OCEDURE CHANGE	E	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approva QC Inspector
Part No	•	PAR #:	Fault Category:	NCR:	Yes	No DQ	A:	Date: _	
· • · ·				(	QA: 1	N/C Close	d:	_ Date: _	
	1	•	MODIZ ODDED MON OOL						

NCR:			WORK ORD	ER NON-CONFORMAN	CE (NCR)			
		Description of NC		Corrective Action Section B	<del></del>	Verification	A	A
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section C	Approval Chief Eng	Approval QC Inspector
						:		
,								



DESIGN	DRAWN BY		OSPACE LTD ONTARIO, CANADA
CHECKED	APPROVED.	DRAWING NO.	REV. E
#	-#	D3121	SHEET 4 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:1



D3121-11 BRACKET

SHOP COPY RETURN TO

1) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)UNCONTROLLED COPY
MIN HITTIMATE TENSILE - 150 HT. SUBJECT TO AMENDMENT MIN ULTIMATE TENSILE = 150 ksi MIN YIELD TENSILE = 100 ksi

- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 5) ENGRAVE DART P/N & LOGO AS SHOWN
- 6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

Copyright © 2004 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

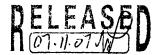
ENGINEERING

WITHOUT NOTICE WORK ORDER

Dart Ae	rospace L	td							
N/O:			W	ORK ORDER CHANGES					
DATE	STEP	PR	OCEDURE CH	ANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
•									
Part No	:	PAR #:	Fault Cate	egory: N	CR: Yes	No <b>DQ</b>	A:	Date:	
					QA: N	C Close	d:	_ Date: _	
NCR:			WORK ORD	ER NON-CONFORMANC	E (NCR	)		·	
		Description of NC		Corrective Action Section B		Verific	nation	A ========	A
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Secti		Approval Chief Eng	Approval QC Inspector
							1		
							<del></del>		



DESIGN	DRAWN BY	DART AEROSF HAWKESBURY, ONTAF	– – – . –
CHECKED	APPROVED.	DRAWING NO.	REV. E
4	<del>-#</del> #	D3121	SHEET 5 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:2



 $\oplus$ 

DAIRT

D3121-13

1.220 - 1.800 -

 $\bigcirc$ 

SEE

2.63

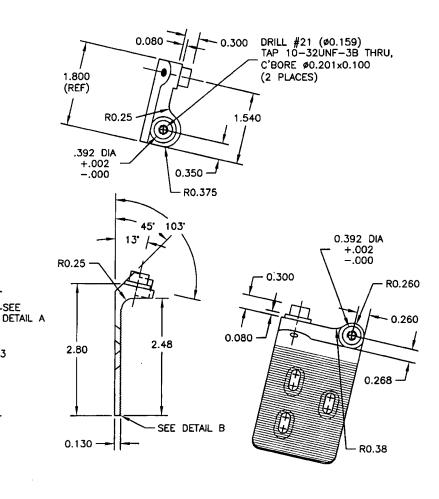
<u>/6\</u>

0.400

1.280

0.960

أـــ 0.330



D3121-13 BRACKET (SHOWN) D3121-14 BRACKET (OPPOSITE)

1) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B) MIN ULTIMATE TENSILE STRENGTH = 150 ksi MIN YIELD TENSILE STRENGTH = 100 ksi

2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

- 3) ALL DIMENSIONS ARE IN INCHES
- 4) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 5) ENGRAVE DART P/N & LOGO AS SHOWN
- 6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

SHOP COPY RETURN TO ENGINEERING UNCONTROLLED COPS SUBJECT TO AMENDMENT WITHOUT NOTICE

WORK ORDER NO. -

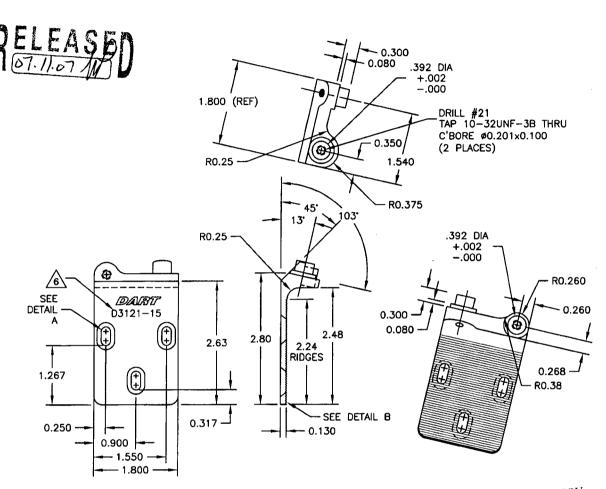
Copyright © 2002 by DART AEROSPACE LTD

W/O:		WORK ORDER CHAN	NGES				
DATE	STEP	PROCEDURE CHANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approva QC Inspecto
Part No		PAR #: Fault Category:	NCR: Yes	No DQ	A:	Date:	
			QA:	N/C Close	d:	Date:	

NCR:			WORK ORD	ER NON-CONFORMANO	CE (NCR)			
		Description of NC		Corrective Action Section B		Verification	Anneoval	Anneoval
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section C	Approval Chief Eng	Approval QC Inspector
					:			



		- Maria	1976
DESIGN #	DRAWN BY	DART AEROSP HAWKESBURY, ONTAR	
CHECKED 🚜	APPROVED,	DRAWING NO.	REV. E
#	4	D3121	SHEET 6 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:2



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

NO. 4025

# D3121-15 BRACKET (SHOWN) D3121-16 BRACKET (OPPOSITE)

1) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B) MIN ULTIMATE TENSILE = 150 ksi

MIN YIELD TENSILE = 100 ksi

- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 5) ENGRAVE DART P/N AND LOGO AS SHOWN
- 6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

Copyright © 2002 by DART AEROSPACE LTD

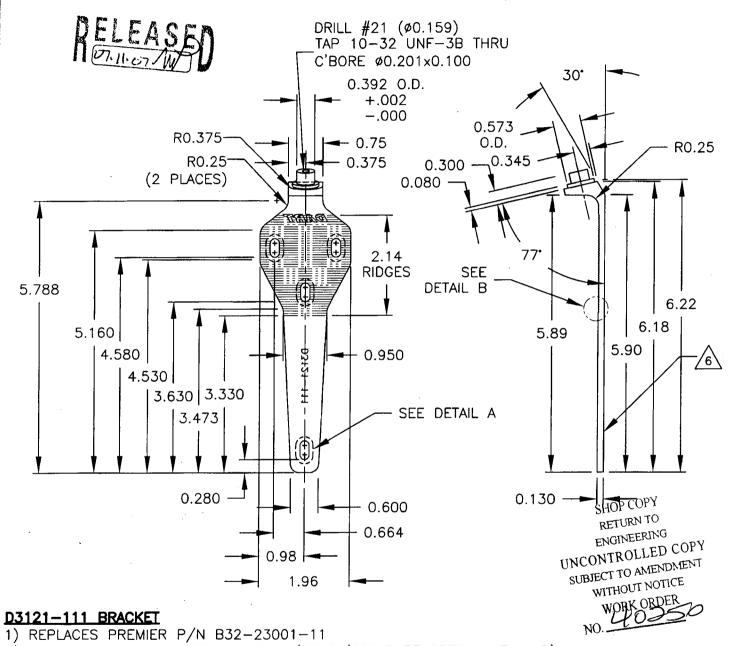
Dart Aerospace Ltd
--------------------

W/O:			WORK ORDER	CHANGES					
DATE	STEP	PR	OCEDURE CHANGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approva QC Inspecto
Part No:		PAR #:	Fault Category:	NCR	: Yes	No <b>DQ</b>	A:	_ Date: _	
					QA:	N/C Close	d:	_ Date: _	
NCR:		1	WORK ORDER NON-COM	FORMANCE	(NC	R)			

NCR:			WORK OR	DER NON-CONFORMANC	CE (NCR)						
		Description of NC		Corrective Action Section B				Approval QC Inspector			
DATE	STEP	Section A		Initial Action Description Sign Chief Eng Chief Eng Date		Verification Section C	Approval Chief Eng				
								-			
,											
							,				
-											



DESIGN #	DRAWN BY	DART AEROSP HAWKESBURY, ONTAI	• •
CHECKED _	APPROVED	DRAWING NO.	REV. E
4		D3121	SHEET 7 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:2



2) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)

MIN ULTIMATE TENSILE = 150 ksi MIN YIELD TENSILE = 100 ksi

- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHEWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 6) ENGRAVE DART P/N & LOGO IN AREAS SHOWN
- 7) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

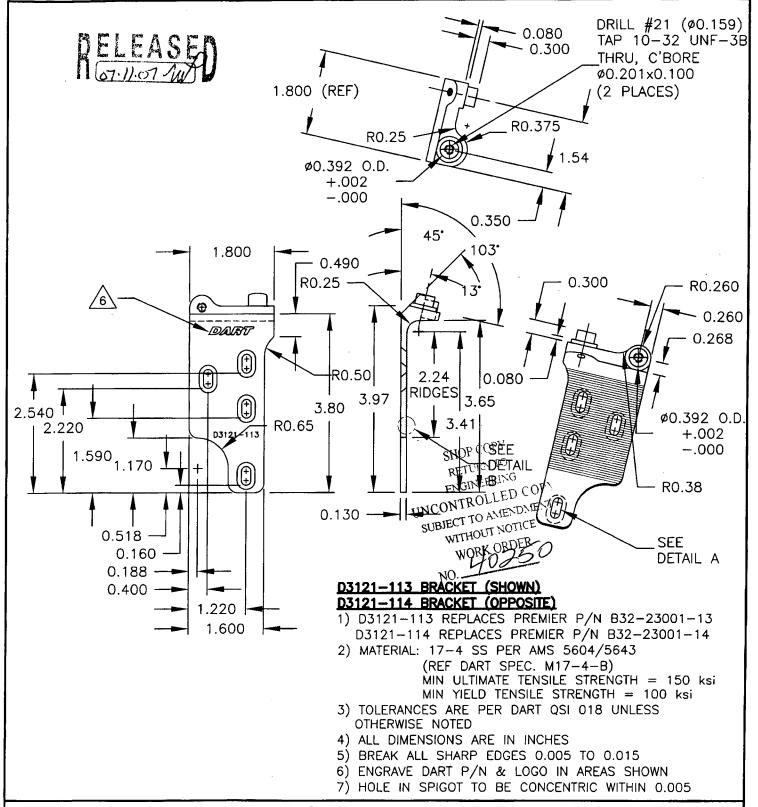
Copyright © 2002 by DART AEROSPACE LTD

<b>W</b> /O:		WORK ORDER CHANGES							
DATE	STEP	PR	OCEDURE CHANGE	В	у С	ate	Qty	Approval Chief Eng / Prod Mgr	Approva QC Inspecto
Part No		PAR #:	Fault Category:	NCR: `	∕es No	DQA	\:	_ Date: _	
				C	A: N/C	Closed	l:	_ Date: _	
_			WORK OPDER NON COM	IEODRANCE /	ICD)				

NCR:			WORK ORD	ER NON-CONFORMAN	CE (NCR)				
		STEP Description of NC Section A		Corrective Action Section B			Approval	A	
DATE	STEP		Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Chief Eng	Approval QC Inspector	



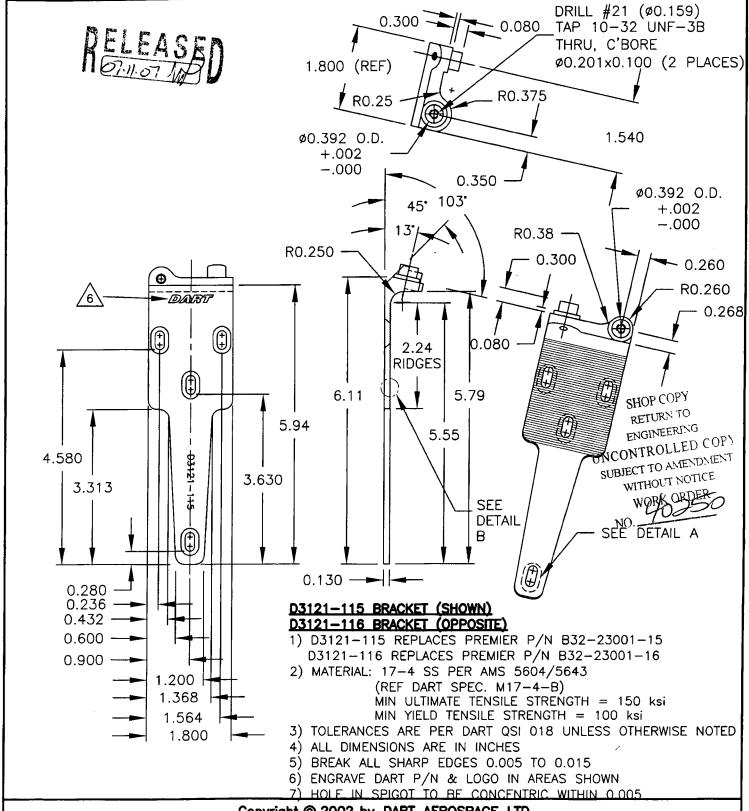
DESIGN #	DRAWN BY	DART AEROSP HAWKESBURY, ONTAR	
CHECKED _	APPROVED	DRAWING NO.	REV. E
#	-#	D3121	SHEET 8 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:2



Copyright © 2002 by DART AEROSPACE LTD

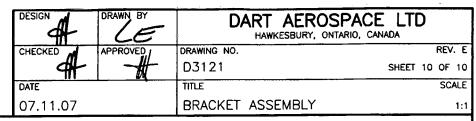


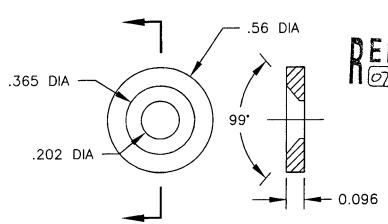
DESIGN	DRAWN BY	DART AEROSP HAWKESBURY, ONTAR	
CHECKED	APPROVED,	DRAWING NO.	REV. E
#	<b>-#</b>	D3121	SHEET 9 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:2



Copyright © 2002 by DART AEROSPACE LTD

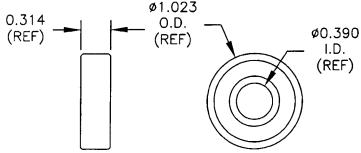






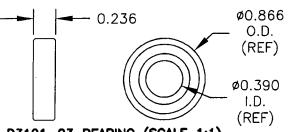
#### D3121-17 WASHER (SCALE 2:1)

- 1) REPLACES PREMIER P/N B32-23001-17
- 2) MATERIAL: AISI 303 SS ROUND BAR, ANNEALED (REF DART SPEC. M303R)
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) BREAK ALL SHARP EDGES 0.005 TO 0.015



#### D3121-19 BEARING (SCALE 1:1)

- 1) POSSIBLE SUPPLIER: KING BEARING P/N 6000-2ZJ/EM 1) MATERIAL: DELRIN ROD, Ø1.25 FAFNIR P/N 9100KDD
- 2) ALL DIMENSIONS ARE IN INCHES



#### D3121-23 BEARING (SCALE 1:1)

1) POSSIBLE SUPPLIER: SKF P/N 61900-2Z

OR KML P/N 6900-ZZ 2) ALL DIMENSIONS ARE IN INCHES

0.080 - 0.050 TO 0.060

### D3121-21 BOLT (SCALE 1:1)

- 1) MATERIAL: AISI 303 SS HEX, ANNEALED (REF DART SPEC. M303H0.500)
- NONE 2) FINISH:

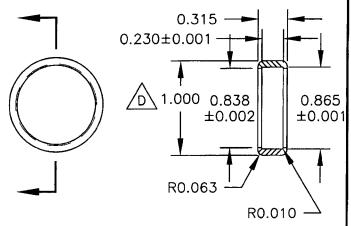
0.375 -

3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

TAP 10-32

UNF-3A

- 4) ALL DIMENSIONS ARE IN INCHES
- 5) BREAK ALL SHARP EDGES 0.005 TO 0.015

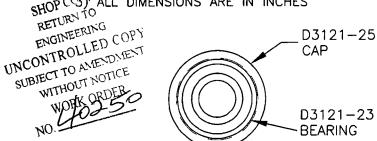


#### D3121-25 CAP (SCALE 1:1)

(REF DART SPEC. M-DELRIN-R1.250)

2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

ALL DIMENSIONS ARE IN INCHES



D3121-241 BEARING ASSEBLY (SCALE 1:1)

Copyright © 2002 by DART AEROSPACE LTD